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SELECTED ARTICLES ON CAPITAL CONSTRUCTION IN COMMUNIST CHINA IN 1959

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SELECTED ARTICLES ON CAPITAL CONSTRUCTION IN COMMUNIST CHINA IN 1959

[Following are translations of selected articles from various 1959 issues of Chien-chu (Construction), Peiping. The date, page, and author, if any, are given under individual article headings.]

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1. Speech by Minister Liu Hsiu-fen at the All-China Construction and Installation Experiences Exchange Conference at Peiping on 18 September 1959

The conditions surrounding the completion of the annual plan by the Construction and Installation Ministry for 1959, despite setbacks in June and July, continues to leap forward. In the period of January to August the amount of completed construction and installation totaled 2,620,000,000 yuan, or 62.3 percent of the annual plan. This is the greatest accomplishment in an eight month period of any year in our history, and compared with the same period of last year, it represents a 20 percent increase. In regards to the problem of engineering quality, through inspections and conferences, this has been greatly improved. It has the attention of every one. Technical control has been strengthened.

There has also been great progress in lowering costs. With last year as a base, the costs for the first half of this year were 13 percent lower. Those construction bureaus directly under the control of the department have costs which are 16 percent lower, an average of 5 percent under the figures for the same period of last year.

Since last year the efforts of the workers and cadre have also been expanded. However there are certain rightist elements which have spread their rightist ideology. On the other hand there are those who did not fully understand the revised plan and continued to try to increase production, not knowing that the revised plan provided for continued progress, in fact better progress. Because of the estimated increase in work for this year the number of workers was increased slightly, and the plan revised accordingly, but the management of these extra workers has been incorrectly handled in certain places. The efforts of some in this respect have been at fault. Ideas such as "the lower the plan the better" and "the plan can be completed without so much effort" have increased our difficulties. Such rightist thoughts as not utilizing material, investment, or equipment simply because it was not complete as called for in the plan and also failing to mobilize the masses has further hindered the completion of tasks. This first appeared during May, increased in June, and was even more apparent during July. Due to the opposition to rightism and stirring up of enthusiasm during August, conditions improved so that the completed plan for August showed a 24 percent increase over July. The results of September were even better.

At present conditions within the construction industry are good. The aims of the Eighth Party Congress are being enthusiasically carried out. Many localities and enterprises have established new standards and regulations. The city of Peiping expects to complete 1,000,000 square meters of finish-up projects by the National Holiday. As of 20 August it had completed 590,000 square meters. Likewise Tientsin wishes to complete 500,000 square meters in the same period of time. The Wuhan Municipal Construction Bureau also wishes to complete some 34 of 62 similar projects totaling 200,000 square meters. The Engineering Bureau No. 3, which belongs directly to the ministry, plans to complete its annual plan 40 or 50 days ahead of schedule. In the province of Liaoning, the construction and installation for August represents a 26.8 percent increase over July. There are many other localities and enterprises which have similar increases for the month of August. From September onward production should be on a constant increase.

The results of the technical revolution and technical reformation are seen not only in the large amount of new implements and machinery and the improvement in the technical conditions within the construction industry, but also the manner in which it has more rationally fit into the over-all national picture and the more rapid progress made by the industry as a whole. Within a month after the Central Committee handed down its plan for technical revolution last year our industry quickly adopted measures to carry it out, mainly through new or improved implements and tools. Although we developed this movement we also depended on the initiative of the masses in improving and creating new tools and implements. This had great effect and the results were very good. The labor productivity rate was greatly increased. In the province of Kansu, alone, the level of mechanization was raised from 15 percent up to 30 percent. In Kirin the five basic types of construction have increased their degree of mechanization and semi-mechanization. There are however those who still are not convinced of the merits of mechanization, making statements like "there are so many tools, one cannot see the work site," etc. In the technical revolution of last year most of the improved implements and tools were brought to being during the initial period of the movement, naturally many were incomplete, etc. With such conditions, which fostered a great deal of rework, they had to be improved. The minute a new implement was introduced it was put into operation throughout the entire nation. Naturally this is not to say that all of the units within the ministry have improved to such an extent, we still must continue, on our past foundation, to expand.

The concept of "factorization" is one in which all pre-fabrication is done within a factory, while semi-factorization is a process in which some of the prefabrication is done in the open air. Other of the prefabrication can be done on-the-spot. In conclusion the method of prefabrication used on a project depends on the conditions present at the work site. The great leap forward has given us a clearer view of the situation in this field.

Concerning the problem of diversification, in the past there were many different ideas on the subject. At the Office and Bureau Chiefs' Conference in July, I stated that diversification is an important method to overcome difficulties, increase self-sufficiency, and complete the task. Last year our ministry operated over 2,900 plants, which produced over 20,000 pieces of construction equipment, 140,000 tons of cement, 7,000 tons of steel, 20,000 tons of iron, and over 5,000,000 bricks. Such a program did much to overcome a lack of machinery and material.

According to inspections, the adoption of diversification within the construction industry resulted in few products being wasted.

According to the estimate of the four engineering bureaus of the ministry, the diversification supplied a surplus of 3,000,000 yuan of profit, and adding to this the estimates of some 11 provinces and municipalities, the total was 28,000,000 yuan.

With the emphasis on iron and steel as it was last year many construction enterprises in their efforts to support such a program, not only provided support to the state as a whole but also proved to be self-sufficient in iron and steel. Although slightly expensive, it nonetheless enables projects to be put into operation quicker. At present the costs of the small blast furnace production are up slightly. A conference on this problem held on 26 August has already cleared many of the points up. The production capability of all of the small blast furnaces in China will total 10,000,000 tons during this year. During the period of the Second Five-Year Plan the grand total will be 55,000,000 tons. Though emphasizing the iron and steel mills is good, it requires a long period of time to become a reality. For instance it is impractical to depend solely on the construction of large blast furnaces, for such production could never be attained in a short period. In the 5 or 6 years since its inception, the Pao-t'ou Iron and Steel Company has had its No. 1 blast furnace in operation, but its small blast furnaces this year will produce 1,000,000 tons of pig iron. Moreover, the costs of the iron produced by the small furnaces has been greatly lowered with a simultaneous rise in management and technical levels. The conditions in the field of cement is similar. Since the inception of the revised plan last year, the small plants have all become small foreign-style plants. Such an enterprise consists of a blower, a ball mill, electrically powered equipment, and instruments all of which are capable of producing cement of over 300-grade quality. At present the quality of the cement produced by such plants is on the rise while its costs are being lowered. In Hopeh the costs of such cement has already been retired to 60 or 70 yuan per ton. Not only must we continue to diversify but we must emphasize it even more.

Since this year rapid labor has had a new development. It has been put to use on large scale projects, such as the Peiping Peoples Auditorium which was built in the short period of 10 months. Such speed is without precedent in our history and has seldom been matched

anywhere in the world. The 9,628 square meter converter shop No. 3 of the Shanghai Iron and Steel Company required just 58 days from beginning of construction to the first turned out iron. Such speed would not be possible without highly organized management and labor. At present over 80 percent of the projects utilized this method. For instance, the Engineering Bureau No. 2 used this method on 75 percent of its projects last year while this year it used it on 85 percent. In speed, quality, and lower costs, great accomplishments have been attained this year.

Raising the mechanization level is a truly important problem. At present, regardless whether it is foreign equipment, domestic equipment, electrically powered or hand powered, all are in need of development. Everyone is saying that we are not adequately mechanized; however, there are units which are not fully utilizing their equipment. This problem requires immediate inspection to find the cause and put forth ways of recitifying the situation. There are pieces of equipment which lack power equipment or whose output is less than that of manpower. This likewise requires close study to find which projects it can be successfully used on. The breakdown rate of equipment is very high. It also is a problem greatly in need of solution. At present there are many pieces of good equipment standing around, not being utilized or incapable of utilization. Naturally there is a relationship between this fact and the lack of repair capability (at present we have assigned certain plants the task of repairing equipment). Simultaneous care and maintenance of the machinery has not been made clear. We must also emphasize the multiple use of equipment for there are many machines, which with slight modifications could be made much more effective.

We are striving to attain full mechanization of construction by 1962. In regard to the distribution of machinery, priority must be given to a few major companies. Since the other companies will receive less machinery, they should emphasize semi-mechanization and the use of improved implements. In the past such distribution was poor, for at present some companies have inadequate machinery and hand labor must necessarily be emphasized. In the field of construction, the time when manual labor is not necessary is a long time off. At present, mechanization, semi-mechanization, and improved implements must be coordinated to raise the mechanization level.

The materials which we need during this year are included in the items of the national plan; however, as to variety and time of delivery there are problems. Because of the increased plan the quantity of materials is inadequate. A solution to the problem of the lack of material and machinery is the key to overfulfilling this year's plan. During last year and the early part of this year there sprang up the motto "If the state will only supply us 75-80 percent of the materials, we will ensure 100 percent completion of the task." Many units have realized these demands. For instance in the period of January to August of this year the Engineering Bureau No. 3 utilized only 58 percent

of its steel materials, 47.8 percent of its wood materials and 71 percent of its cement in completing 100 percent of its task. We must still depend upon this motto, as well as self-sufficiency for 20-25 percent of the necessary materials.

2. Speech by Chiao Shan-min of the Kansu Party Secretariat at the All-China Conference for the Exchange of Experiences in Construction and Installation on 18 September 1959

No. 19, 13 October 1959
Pages 15-17 (excerpts)

I wish to simply introduce you to the conditions governing the development of Kansu in the last ten years. Everyone knows that originally Kansu was an economically and culturally backward area. Prior to the liberation, because of the long period of control at the hands of the KMT reactionaries, it can be said that there was no industry in Kansu. In the entire 11 years from 1938 through 1949 the crude oil production of the Yumen Oil Fields was only equal to that of a 4-month period now. At that time there were only 18 industrial production plants in the entire province. Frequent crop failures left the province lacking adequate food. Our communications were also backward. Taking Lan-chou as an example, prior to the liberation the entire city covered only 16 square kilometers and contained only 2,000,000 square meters of buildings, etc. However since the liberation, our province has been developing on a par with the rest of the nation. By 1958 the total value of industrial and agricultural production was over 3 times greater than that of 1949. Of this total the industrial increase was over 9 times that of 1949. In the field of agriculture, by 1955 our province changed from one of "shortage" to one of "surplus."

In the field of industrial production, many products which could not be produced in the past can now be produced. Examples are high-grade lubricating oils, light motor oils, chemicals, steel, steel materials, machine tools, cement and many types of light industry products. Crude oil output showed a 15-fold increase for 1958 over 1949. By 1941 oil output equaled the total output of the entire nation for 1949. Electric power showed a 55-fold increase in 1958 over 1949, and coal output showed a 43-fold increase for 1958 over 1949. In the field of communications, by 1952 the railroad had reached Lan-chou. By the end of 1958 the total trackage of all railroad in the province was 1,910 kilometers and by the first day of October of that same year Hsining could be reached by train. The amount of highways showed a 6-fold increase over 1949.

With the leap forward in 1958 there continues to be great progress made. In the first half of the year the total value of industrial production fulfilled 105 percent of the plan for the first half of the year. This represents an increase of 163 percent over the production for the same period of last year. In capital construction, 97 percent of the first half year plan was completed, which is equal to 43.2 percent of the full year plan and an increase of 27 percent over the same period of last year. In prospecting and drilling, 49 percent of the annual plan was completed for a 12 percent increase over last year. The annual rail transportation plan was 47 percent completed for a 108 percent increase over the same period of last year. The highway transport plan for the year was 61 percent completed, a 94 percent increase over the same period of last year.

I would now like to talk of the conditions of capital construction within Kansu in the last ten years. If the total capital construction investment for 1952 is taken as a base of 100, then that of 1958 would be 514, and a total of nearly 8,500,000 square meters of construction was completed. According to an estimate by the Engineering Bureau No. 2, a total of 2,512 projects were completed in the period of 1954 to the first half of 1959 and 775 projects are now underway. These projects include such projects of the "156 projects" as the Lan-chou Petroleum Plant, Lan-chou Chemical Plant, Lan-chou Petroleum Machinery and Equipment Plant, Hsi-ku Thermal-electric Power Station, etc. Also included are the Lan-chou Water Plant and the Lan-chou Cotton Textile Mill, which are above-norm projects. In the construction of these projects, disregarding the speed of the construction, quality still is good. For example, the Engineering Bureau completed eight projects which included a chemical plant and a petroleum plant in from 3 months to half a year ahead of schedule. In a period of just over 3 months it constructed a total of 177 blast furnaces having a capacity of nearly 2,000 cubic meters and in a little over 40 days constructed the Ho-hsi-pao Thermo-electric Station, which has a capacity of 3,250 kilowatts. Due to the enthusiastic acceptance of the workers for mechanization, the proportion of mechanization on projects for this year has increased to 30 percent. Furthermore, the workers are striving to overcome material shortages, and while still giving emphasis to quality, are conserving materials. According to an estimate, the Ministry of Construction has conserved over 7,800 tons of steel materials, 10,500 tons of cement and over 5,700 cubic meters of wood in the first half of this year. Together with the development of the capital construction industry development, the construction and installation units have likewise made progress. According to estimates by the Engineering Bureau No. 3 and the Provincial Construction and Engineering Bureau, taking 1953 as 100, by the end of the first half of 1959 workers had increased over 4-fold and technical cadre had also increased 4-fold.

3. Great Development in the Science and Technology of Construction

No. 19, 13 October 1959
Pages 24-28

Wang Ta-chun

This year is the tenth anniversary of our Nation and in these 10 years great feats have been attained in the science and technology of construction. Formerly the technical phases of construction within our country was entirely within the hands of foreigners and the technical accomplishments of our own technologists had no way of being utilized. Because of this our technology was entirely backward.

Since then the liberation conditions have undergone a basic change and our construction industry has greatly developed. During the period of the First Five-Year Plan the total of our mining and industrial construction units increased to over 10,000. In the past ten years a total of nearly 52,000,000 square meters of plants, dormitories, and public buildings have been built. Sixty seven new cities have been constructed. In spite of such large scale construction, technology and science in the field of construction has also developed greatly.

In 1956 a science 12-year plan was launched. Within the field of construction, scientific research into area, municipal, and industrial construction were undertaken.

The science and technology of our nation is not only in the hands of technologists, it also is in the hands of the working masses. In the great technical revolution the working masses have put forth many valuable and creative suggestions. This has been a key factor in the rapid development of our science and technology.

Due to the above reasons, in the past 10 years our science and technology has greatly increased. Besides the Construction Scientific Research Institute established by the Ministry of Construction and Engineering, various provinces and autonomous regions have established similar organs. The initial steps toward a nationwide technical network have been established. Attention has been focused on the use of foreign technical achievements to adapt them to the conditions of China.

Prior to the liberation, the major construction materials in use were brick, tile and wood. The main type of framework in use was of wood, brick, or a mixture of wood and brick. Because of the scope of the large-scale industrial projects and the modernization which is underway, such conditions become more and more unsatisfactory, making it necessary to use new materials and framework. At present we have mastered the installation, manufacture, and design of steel-reinforced concrete and pre-fab steel framework. The Soviet Union has been instrumental in the advanced experiences in these methods.

By using pre-fab steel reinforced concrete construction, 20 to 70 percent savings can be made in steel materials. We can now mass produce various pre-fab units including 18 to 30 meter girders, structures for 5 to 75 ton cranes, and various other beams and structural parts. The use of steel reinforced concrete construction has already become a most important factor in our construction.

The use of "shell" framework has greatly shortened the construction time. Not only are such construction techniques advanced but they also can greatly reduce the manufacturing costs of construction. During 1958, the Ministry of Textiles utilized great amounts of "shell" construction, including thin-wall tube and semi-circular thin-wall and other types such as steel-wire reinforced, etc. are under study.

With the daily increase in the scope of construction, research in the field of construction materials has likewise increased. Prior to the liberation we could produce only one type of ordinary cement. Since 1953 when we began to study Soviet advanced experiences, we have enlarged this to 28 types. Cement production has increased from 660,000 tons in 1949 to 9,300,000 tons in 1958.

Last year we already produced No. 1000 concrete pre-fab steel-reinforced concrete girders. The research in heat-resistant, cold-resistant, acid-resistant, and water-resistant cement has been completed and they are in use.

Use of industrial and agricultural by-products has, in the past few years, been a major problem in the world as a whole and the Soviet Union in particular. We have done a great deal of work in this respect also. We researched both the gluing and hot-pressure forming of board from wood fragments, agricultural products, and fodder.

The design work of large scale capital construction is extremely important. Its relationship to advanced framework, conservation of materials, technology, and the development of construction are big problems. Therefore the condition of the technology of a country's construction can be judged from its design level. Our design force has expanded from a few engineering design offices prior to the liberation to its present strength of about 200,000 persons. Moreover, in quality and technical levels the work is higher. In 1957 it was possible for us to independently design a 1,500,000 ton per year steel combine, a 2,400,000 ton per year coal mine, a 1,000,000 ton per year oil refinery, and miscellaneous machinery and equipment and chemical plants. The aim of the Second Five-Year Plan is 90 percent self-sufficiency in design.

We are utilizing Soviet advanced experiences which enable us to save 20 percent in materials used in steel reinforced concrete work. The trend in construction design research is from ground level construction to skyscraper and from statics to dynamics.

Another important point is the design work in standard design and ordinary design. In 1957, 40.7 percent of the industrial and civil construction utilized standard designs and standard parts, for a total of 1,875 projects of standard design. By 1958 the completed standard

design projects totaled 1,620. In 1958 the adoption of a "movable board" design method increased the labor efficiency by 30 fold.

The construction industry is of a "combine" nature. Its scope is quite broad, for manufacture of parts to installation and design. In the past 10 years our labor technology has expanded greatly. The rapidity of work in 1958 manifested the greatness of our labor levels and labor management. A chemical plant of over 10,000 square meters can now be built in 45 days, whereas ½ year was formerly required. Similarly, a three-story dormitory can not be built in 18 days instead of 80. In Peiping, a four-story building was completed in just 8 days. The creation of new methods and equipment by the masses has also greatly reduced labor expenditure and increased labor productivity.

The construction of the Wuhan Bridge manifested the development of our construction technology. The bridge was built with the co-operation of the USSR and Chinese scientists. The revolutionary underwater methods used changed labor conditions from their former state. The future of these methods in water conservancy, with progressive research, are great.

Welding is another field in which levels have been raised. By welding instead of riveting, 20 to 30 percent savings can be made in steel materials. Working conditions are also changed and quality raised.

In the field of municipal construction we have an entirely different view from the capitalists. Our municipal construction is based on the working masses. The plan of our industrial construction which places plants near a source of raw materials and also strengthens our national defense, has changed our former concept of concentration of industry. The newly constructed Pao-t'ou Iron and Steel Combine is on the site of a former grassland. Pao-t'ou has changed to a city of 600,000 people with many new residences. Many other places have had similar construction to change them into industrial cities.

In the research of designing of these cities we have paid attention to various aspects of culture, education, hygiene, exercise, and commerce so that the cultural and productive life necessary for industrial production can be satisfied.

The advent of the Peoples Communes in 1958 immediately required planning. We carried out planning and research for more than 2,000 of these communes. Examples are the "July 1" commune in Shanghai, the "sputnik" commune in Honan and others in Nanking, Ch'eng-tu, and Liaoning.

Other special problems such as lowering temperatures in high-temperature shops, etc., came under research and certain successes were attained.

The creative research by the construction industry for the past 10 years has been very successful. The creativeness of our engineers in such projects as the Peiping People's Auditorium, the People's Cultural Hall, etc. have set a good pattern for the future. We have

also carried out several investigations into housing. At present we are compiling a document of great future use, which will incorporate experiences gained in the past 10 years as well as research and writing on Chinese construction for the last 100 years.

What has been stated above is but a portion of the accomplishments of the Chinese people in the past 10 years but it will indicate clearly the complete revision in the countenance of Chinese construction. The experiences gained will serve as a basis for future technical and scientific research into construction. We must however look at the present. Our scientific and technical research work in construction does not meet the demand of our huge construction requirements. There are many blank spots.

4. Completion of a 500,000 Square Meter Project In 40 Days

No. 19, 13 October 1959
Page 34 (excerpt)

Tientsin Construction and Engineering Bureau

At the beginning of August, in order to make the motto of the city committee, "consolidate strength and fight for 40 days to complete the 500,000 square meter project before the national holiday," we established a plan, drew up regulations, and started a great scale mass movement. By 27 September, after 37 days of struggle, we completed the project which in area represented a one-fold increase over the first half of the year. Project quality according to estimates reached 93 percent. By the adoption of the rapid work method an average of 18 projects was completed each day and productivity was up 49.2 percent.

5. Great Development in Education of Construction Industry Workers

No. 19, 13 October 1959
Pages 36-40 (excerpts)

Deputy Chief Wang T'ai of the Bureau of Education, Ministry of Construction and Engineering

Great accomplishments have been attained in the education of construction industry workers through the leadership and control of the party and the guidance of the labor unions. Worker education was begun by a few of the enterprises and municipal construction units of the original construction materials system in the initial stages of the building of our nation and immediately after the peoples revolution. The work of educating workers of the construction industry enterprises began

in 1952. According to an incomplete estimate made by the six engineering bureaus, a total of over 109,000 workers participated in studies of 50.5 percent of the total number of the six bureaus.

In March 1956 the Municipal Construction Bureau and the All-China Congress of the Construction Workers Union simultaneously held a conference on worker education. This conference studied and planned for problems like a long-range plan for worker education, scope of study, cost of the program, etc., as well as directing and promoting the progressive development of the work of worker education. The former Northwest Engineering Bureau and the Mukden Engineering Bureau, taking their lead from the conference, established a system of enterprise study exchange and worker management education. These two bureaus had a total of 205 special technical instructors, 1,206 worker-instructors, and 47,003 students, all of which totaled 62.5 percent of the total working force. The way in which the spirit of the conference was caught up by many localities provided a basis for development of their education.

The promotion of production by education was very evident during the great leap forward of 1958. In May 1958 the Ministry and the All-China Congress of Construction Workers Unions held an exhibition at Sian. The conference showed the accomplishments and experiences gained through education. It also set the goal of worker education and the training of cadre to be attained in the Second and Third Five-Year Plans.

6. Progress Under the Main Line

No. 19, 13 October 1959
Pages 41-43 (excerpts)

Yang Kuang-hsu, Chief of the Shanghai Construction and Engineering Bureau

In the past 10 years, Shanghai construction workers under the unceasing education of the party have had a rapid advance in class awareness and technical levels. In the construction of socialism they have attained great success. From 1953 to the present our bureau has built a total of over 10,000,000 square meters of housing, or a number equal to 1/3 of the housing standing in Shanghai just prior to the liberation. The total for industrial construction is nearly 2,300,000 square meters. In conjunction with the unceasing rise in technical and management levels, engineering costs have lowered and labor productivity has increased. An example of lower costs is shown if the amount for 1953 is taken as 100 percent, then 1958 would be 469 percent. In labor productivity the amount of work produced by one worker in 1958 almost equaled that of three workers in 1953.

In 1958 the backward condition of construction in Shanghai was rectified by the adherence to the main line and other principles as prescribed by the party. The amount of construction completed in 1958 was almost equal to twice that of 1957 and equal to 45.6 percent of that for the whole First Five-Year Plan. In just that year nearly 3,270,000 square meters of building were constructed. Of this 455 units constructed were industrial plants, an increase of 4.8 times over 1957.

7. We Must Build Our Nation's Frontier Well

No. 19, 13 October 1959
Pages 44-45 (excerpts)

First Construction and Engineering Division of Sinkiang Province's Production and Construction Unit of the CPLA

We are members of the PLA fighting on the battle line of construction. In just nine years we have improved the frontiers of our country. We already can produce construction materials for surveying and the work of industrial and civil construction. Our design and operating strength has grown. We have established a machinery installation force and a survey department to support all subsidiary enterprises.

In these few years we completed such industrial construction as oil wells, iron and steel mills, electric power plants, textile mills, and machinery plants as well as a great amount of civilian construction. We used a method of cold concrete work in severe winter conditions (40 degrees below zero). In many minerals and in oil we are self-sufficient and in brick and tile we had a surplus for local use. We also trial manufactured over 40 new products. We used foreign-native methods to build 738 pieces of various types of machinery and equipment. We also built great numbers of shakers, mixers, winches, 4-meter plano-milling machines, and complete sets of equipment for 28 cubic meter blast furnaces. We also built cutting tools which revised nationwide standards, and some 700 plows for agriculture.

We established farms, clinics, etc. and solved problems in the supply of daily necessities. In one year over 60,000 yuan in profits were remitted to the state.

In 1958 many tasks with the construction workers as the nucleous, were completed. We completed an 850,000 square kilometer design and 76,000,000 square kilometer topography survey task; completed construction valued at 62,360,000 yuan and totaling 615,188 square meters. The productivity of each construction worker was 33.4 yuan per day and totaled 9,285 yuan per year, for a 12.33 percent reduction in costs. Simultaneously the annual production tasks in minerals was exceeded by 40,000 tons, in coke by 1,800 tons, in refined iron by 5,523 tons, and in refined steel by 244 tons. In addition, 50 kilometers of railways

were repaired and over 1,200,000 cubic meters of earthwork was completed for railway construction.

In developing business we have carried on production and business according to the needs of labor. In such development we have endeavored to bring production to acceptable standards, such as in iron refining by native methods. For the transformation of steel into steel materials we constructed 250-400 millimeter automatic rolling mills and solved the need for steel materials. In construction machinery and equipment (a basic need in the mechanization of construction), we established machinery plants and material plants, increased transport capabilities, and increased the output capacity of products for livelihood and production.

8. Sixty Days of Struggle To Overfulfill This Year's Task In Construction and Installation

No. 20, 28 October 1959 Editorial
Pages 6-7 (excerpt)

At present the workers of the construction and installation industry are ensuring the important aims of our national capital construction. Of primary importance is the ensurance of projects entering production during this year. There still remain 60 days in this year which will never come again. At present the urgent task of the workers of this industry is to oppose rightist conservatism and to strive to overfulfill this year's construction and installation plan by 10 percent. This would also provide sound preparation for a continuous advancement next year.

An increase of 10 percent would allow projects to enter production early and ensure a continual advancement in the national economy. The beginning, this winter, of many earthwork and foundation projects will give the work of next spring a fine preparation for advancement by creating profitable conditions.

The completion of this task as with all the others of our economy is important. At present through the enthusiasm and efforts of all enterprises and the masses, production is increasing daily. The quality of many important projects is 98 percent or over. Some units have labor productivity values of over 40 yuan per day and are making savings in steel materials, cement, and lumber of over 20 percent. Under the conditions by which 70-80 percent of materials are state supplied and self-reliance must devise methods to make up the difference, tasks are being 100 percent completed. We believe it is possible to complete this year's plan ahead of schedule if an effort is made.

To complete such a great task requires certain regulations to overcome former difficulties and solve work problems. After conservatism is overcome, the projects at hand can be increased and through low-temperature and winter work they can be completed. Under such conditions it is imperative that plans be devised, materials dispersed, work forces distributed, and transport, labor and technical problems be solved. In addition, experiences of last year's great leap forward must be incorporated. Through self-reliance we must solve certain material shortages. We must rely on latent forces and revolutionary ideas to solve certain labor shortages. We must strive to solve winter equipment and material supply problems. Only if each problem is completely solved and only if all work is coordinated can the difficulties be successfully overcome. However, it must be pointed out that the key point to overcome difficulties and overfulfill the plan is by strengthening party leadership and mass movements.

9. Peiping and Shanghai Struggling To Overfulfill this Year's Construction and Installation

No. 20, 28 October 1959 Unsigned article
Pages 8-9 (excerpts)

Peiping: The fourth quarter shows a great leap forward.

The 150,000 workers struggling in the capital construction campaign of Peiping have, after great victories in August and September, waged a "fall campaign" with industrial capital construction as its main aim. We are striving to begin 1,600,000 square meters of construction before 20 November and to complete 800,000 square meters of construction during the fourth quarter. This will give a boost to production and capital construction this winter and next spring.

Shanghai: Great efforts are being made to ensure the completion of major projects ahead of schedule.

The construction and installation workers of Shanghai are struggling on the basis of a leap forward during the first three quarters of this year to wage a great campaign during the fourth quarter and complete the plan ahead of schedule.

According to the arrangement of the plan by the Shanghai Construction and Engineering Bureau, nearly 200 projects will become usable, totaling nearly 800,000 square meters. So that the projects will be usable on time, the bureau is adopting the principle of consolidating battle lines and ensuring major points. It will ensure increased industrial facilities and the construction of 200,000 square meters of new construction.

10. Raising the Mechanization Level of Labor

No. 20, 28 October 1959
Pages 20-22

Meng Kung-pin, deputy bureau chief of the Installation and Mechanization Bureau

It was not until 1953 that our Ministry of Construction and Engineering began to establish a mechanized work force. In only 6 years this force has grown. There are 16 types of modern construction machinery and transport equipment in use within the Ministry, a 2.6 fold increase between 1958 and 1952. By the end of 1958 the amount of mechanization in the Ministry was 20 percent in earthwork, 77% in installation projects, 44 percent in transport, and 62 percent in concrete mixing.

Great emphasis has been placed on mechanization by both the central government and the state council. Such emphasis is both proper and timely. During the First Five-Year Plan period, many backward manual methods were revised. The implementation of industrialization and mechanization is the single most important point in revising our construction industry. There are those, however, who say "it is not rational to emphasize mechanization when we have so much labor available" or they say "mechanization is good but not economical," etc. Bold thinking in terms of practical application over the past few years and especially in 1958, has clearly been shown to be inadequate. Mechanized construction is not only needed in our country, it is very important. Without it our socialist construction cannot be ensured. Why is this?

First, mechanized operations can finish a task quicker than manual labor. Much industrial equipment weighs several tons or at least several kilograms. Moving such equipment as well as the earthwork required demands machinery. According to estimates, each 1,000,000 yuan of construction costs includes 18,000 cubic meters of earthwork and installation of 1,200 tons of structures, 1,850 cubic meters of cement, and transport of 160,000 ton/km. of lumber. Such is not possible with only manual labor. In the period of the First Five-Year Plan, industrialization and mechanization greatly increased the speed of construction. Generally, work periods were cut 50-60 percent. An example of the importance of mechanization is the completion of 600,000 cubic meters of earthwork on two 10-kilometer canals in just 40 days instead of 55 days in order to prevent a flood and to ensure completion of an industrial area.

Furthermore, mechanized operations increase labor productivity. The use of pre-fab parts saves materials and time at the project site. At present there is a question whether using mechanical operation on earthwork is both good and frugal. According to actual experience, the answer is -- yes. Generally, using machines is better and cheaper than using manual labor. For example, the Mechanical Operations Company,

which is subordinate to the Ministry, completed 8,150,000 cubic meters of earthwork in just 136,000 work days during the first half of this year. Had manpower been used, 9,800,000 work days would have been needed or 10,000 men per day for 980 days. This shows that machines are 70 times as efficient and 870 days faster. From the standpoint of cost, machines are still far better. The Engineering Bureau No. 1 made a comparison of machine operations and manual operations during the First Five-Year Plan and found these results: in earthwork underground machines are twice as fast as men and cost 28 percent less; in ground leveling work manual labor is three times more costly than machines; and in earth filling machines are 100 percent cheaper than manual labor. Some people consider earthwork quality of no importance but it is very important and mechanized operations are by far of higher quality.

Since the great leap forward of 1958 and our commune program, the features of our country regarding manpower has changed. No longer is it in abundance, in fact it is lacking. Therefore, mechanization is the most important way to raise production and productivity. If we did not use machines for earthwork, installing structures, mixing cement, etc., the manpower required for the job would be extremely great. If our Ministry utilized only manpower, 200,000 work days would be required to complete each 1,000,000 yuan of construction and installation work.

To correctly implement such mechanical operations requires us to study Soviet advanced experiences and adapt them to our conditions.

1. Utilize the worlds most recent technical accomplishments, expand mass movements to improve tools and revolutionize technology, co-ordinate mechanization, semi-mechanization, and improved implements, and progressively raise mechanization levels. The main problem in expanding mechanization is opposing conservatism.

2. The need to strengthen machinery control, uncover latent mechanical strength, and develop mechanical efficiency is highlighted by four problems, namely:

a. In the past there were two methods of caring for machinery. One was heavy repairs and little preventive maintenance, while the other emphasized maintenance and by doing so reduced breakdowns considerably. The second method is the correct one and is being used by many units, but the main reason for the low efficiency in utilizing machinery is a lack of inspection. A program of periodic maintenance and operator responsibility is very urgently needed.

b. Care of repair equipment must be emphasized and technical strength increased.

c. An important condition in maintaining machinery is the production and supply of parts. Many plants which formerly were parts plants must be reverted back to such production from their present production of machinery and equipment. Because of our present variety of machine types and brand names it is difficult for one locality to solve its own problems in the variety of parts required. Therefore,

besides being self-sufficient, a system must be established to strengthen supply and solve this problem.

d. The correct use of equipment will increase its efficiency. Plans for equipment use must be devised and proper preparations taken before projects are started.

3. The principle of consolidation in machine control must be emphasized, as it is correct. The present problems in this respect are in rapidly restoring and establishing control systems.

4. The growth of technical strength and technical levels is of importance to the continued development of construction industry mechanization. Under present conditions, the proper method is to emphasize classroom study and on-the-job training, with more emphasis on the latter. In a short time the technical forces can be increased and technical levels raised.

11. Ten Glorious Years

No. 20, 28 October 1959
Page 23 (excerpt)

P'eng Chu, bureau chief of the Tientsin Municipal Construction and Engineering Bureau

Prior to the liberation, Tientsin was a semi-feudal, semi-colonial city with a backward industry and low production capacity. The value of machinery and equipment manufactured was less than 1 percent of the total value of production.

Since the liberation, modern plants have gone up and new public buildings have appeared one after another. The area of the new buildings is equal to 50 percent of the original buildings of Tientsin. In industrial construction, the newly constructed, expanded and renovated industrial enterprises during 1958 totaled 535. Together with the industrial construction increase, many of Tientsin's old plant buildings were demolished.

To satisfy the needs of the working people for culture and hygiene, 9 schools of college level, 66 high schools, 55 grade schools, and 3,900,000 square meters of housing, 17 movie theaters, and over 70 hospitals, clinics, and worker cultural halls have been renovated or newly constructed.

The task completed in 1958 by the Tientsin Construction Industry was 3.2 times that of 1953. Work time of the projects were reduced over one-half. In regards to ensuring or raising quality, a total of 7,560,000 square meters of engineering was turned over to production and in general, quality was satisfactory. Costs were lowered. In the period of 1953 to 1958 a total of 36,880,000 yuan of investment was saved for the state. Worker productivity was also raised. In 1958 it was 2.23 times higher than in 1953.

Together with the completion of the tasks by the Tientsin municipal construction industry in the past 10 years, the ranks of the construction workers has swelled also. Present strength is over twice that of 1953 and technical and management levels are higher. At present not only ordinary industrial construction can be attempted but also quite complex projects. In regard to equipment, since the technical revolution movement of 1958, the degree of mechanization is up considerably. At present our crane-installation capability is up 200 times that of the preliberation period.

12. Building a More Beautiful and Prosperous Ning-Hsia

No. 20, 28 October 1959
Pages 25-26

Ting I-min, bureau chief of the Ning-hsia Hui Autonomous Region Construction and Engineering Bureau

The Ning-hsia Hui Autonomous Region is one of the very best places in our country. Conditions were poor prior to the liberation but since then and especially since 1958 conditions have greatly improved. The investment in capital construction for the region during the First Five-Year Plan was large but that for 1958 was 18 times greater than the average for the years of the First Five-Year Plan. This year's investment is even greater.

The region has built up a sizable construction force in these 10 years to include five special construction companies and 17 hsien and municipal enterprise units (united with various other units of both hsien and cities and communes to form a region-wide network). In addition to the two construction companies assigned by the central government and their related construction and industrial forces, the region has 30,000 construction workers.

There has been a sizable improvement in the living conditions of the people in just 10 years. According to an incomplete estimate, by autumn of 1958 over 1,200,000 square meters of civil construction had been completed, which is sufficient to provide adequate housing for 300,000 people. In the last three months of 1958, 100,000 square meters of housing was built in Yin-chou. In this year housing equal to 34 percent of that in existence will be built. Conditions in the villages after the great leap forward and communalization were far better.

Accomplishments in industrial construction were great. Prior to the liberation the industry of Ning-hsia was negligible. In the last 10 years industries have appeared in many places. By the end of 1958 over 10,000 large and small plants had been constructed in the region. Of these over 350 are managed by special districts or

hsiens, a 40-fold increase since the liberation. The new plants include chemical plants, iron and steel mills, shale oil plants, and refractory materials plants. Many of these are modern mechanized plants.

Production of construction materials has developed greatly in the region. Over 100 brick plants have been established and a cement industry has been started also. The survey work for a 300,000 ton per year cement plant is underway. The non-metallic resources of our region are abundant and great effort is being put into prospecting. At present there are over 10,000 persons in the construction materials manufacturing force.

Municipal planning and trial establishment of communes in rural villages have been successful. The autonomous region has established a design institute and many enterprises have their own design capability. Since the last half of 1958 to the present, over 400,000 square meters have been designed. At present the degree of civil design is progressing toward that of industrial design and design forces are increasing daily.

Prior to the liberation Ning-hsia's two small cities, Yin-chou and Wu-chung, had poor road and water systems. Since the liberation, the roads have been widened and repaired. Since the last half of 1958, 210,000 square meters of roads have been resurfaced and a 19,000-meter water-system has been repaired in Yin-chou. Forty-five bridges have also been constructed.

Shih-chu-shan formerly was a small town of a few families, now it is an industrial city and has built schools and residences. It is becoming the "coal capital" of the entire region. Wu-tu, Chung-wei, Chung-ting, Ku-yuan, and Ch'ing-tung-hsia also are developing industrially.

13. Speech by Chang T'ien-min, Chairman of the All-China Congress of the Chinese Construction Workers' Union at a Conference on Exchange of Advanced Experiences on 2 November 1959

No. 21, 13 November 1959
Pages 17-23 (excerpts)

The direction of development of our nation's construction industry is towards practical application of mechanization and industrialization, an advanced experience of the USSR. The attainment of this objective is very important. To succeed we must carry out technical revolution and manifest creative ability and simultaneously expand our present and very effective key advanced experiences. Since the great leap forward of last year, the workers have created many advanced type implements. Many enterprises have increased the efficiency of their equipment. Efficiency has especially been raised in brick laying, cement work, transportation, and earthwork.

For instance there was a total of 24,000,000 square meters of brick laying for this year, judging from the 1,200 bricks per worker per day for 1958, this would require 330,000 workers. By incorporating advanced brick laying methods, the workers' productivity can be raised to 2,000 bricks per day, effecting a saving of 130,000 workers.

Key problems can be solved through such advanced methods. Various localities have already taken steps to exchange and incorporate such ideas by organizing teams. The Hunan Tile Industry Advanced Experience Unit, after only three months in existence and with only 20 percent of the total strength of the whole nations tile industry force of 2,500 workers, trained 425 persons to go to other localities and companies and establish other advance experience units. Each advanced worker must also become an activist in promoting the spread of advanced experiences, through sharing his own advanced experiences and adopting those of others to quickly raise production levels.

14. An Actual Continual Advancement

No. 21, 13 November 1959
Pages 28-31 (excerpt)

Lu Hsiu-ken, deputy party secretary of the Nan-t'ing Construction and Engineering Company

Since its establishment in 1952 our company has expanded its forces, renovated old enterprises, and enabled production to leap forward. Formerly we were only capable of brick and wood structures, but now we are technically capable of the high demands of civil housing, power plant and industrial plant construction, medium-scale water conservancy projects, and docks and general industrial equipment installation projects. In the past 7 years we have completed over 1,300,000 square meters of plant buildings, warehouses, schools, etc. Quality and worker productivity are up and costs are down. In 1958 the total work completed equaled one-third of the total completed in the previous seven years. By 24 October of this year we had already finished this year's plan 64 days ahead of schedule and work quality was 98 percent. Daily worker productivity reached 35.5 yuan and costs were down 25.5 percent. Not a single serious accident occurred. In this period we also produced 90 electric motors, 44 transformers, and such other equipment as winches, cranes, lime spreaders, planters, etc.

We provided for our own needs by expanding our mechanization and industrialization. We produced 2,176 tons of cement; 25 tons of fiber glass; 3,149 tons of lime, 414 cubic meters of pre-fab concrete slabs, 2,214 tons of refractory brick, 11,580 cubic meters of lumber, 10,000 sections of cement pipe, 3 tons of lubricating oil, 100,000 pieces of oil paper, and 10 tons of nails to greatly reduce material shortage problems.

15. Forty Continuous Months of Monthly Plan Completion

No. 21, 13 November 1959
Pages 32-35 (excerpt)

Wang Lien-chung, manager of the (Dairen-Port Arthur Construction and Engineering Company No. 1

Our company was formed in 1952 from a nucleus of the Dairen Earth and Wood Construction Cooperative and several other construction units. Prior to June 1956 we frequently failed to complete our plans. Since then, however, we have in all areas continued to climb. Especially since 1958 has our advancement been apparent. In the period of July 1956 to October 1959, 40 months, we completed our monthly plan each month. In 1958 we completed a total of 110.3 percent, a 77.6 percent increase over 1957. In a total of 247 projects, quality averaged 98 percent, an increase of 11 percent over 1957. Costs were lowered 25.48 percent. Labor productivity has continued to climb. In 1958 it was 17.58 percent higher than in 1957. Major accidents have been reduced. The advancement has continued this year. During January to September the plan was exceeded by 9.8 percent (in the first six days of October the entire October plan was completed). In the field of lowering costs, on the basis of the revised plan of 1959, costs were cut 18.82 percent (as of 25 October they were reduced to 19.5 percent). Worker productivity was up 10.8 percent over last year.

Our most important principles in overcoming difficulties are:

1. Destroy the material crisis. Adopt methods to oppose conservatism, mobilize the masses, and promote the uncovering of latent capacity. Reducing stock piles of supplies and conserving raw materials, substituting materials, and sharing and producing our own materials will greatly conserve construction materials. In 1958 we self-produced 14,273 tons of cement (33.7 percent of the amount needed); 3,896 tons of steel (25.4 percent of the amount needed); and 9,280 cubic meters of lumber (25.9 percent of the amount needed); by September 1959 we had produced 1,050 tons of cement (10.2 percent of the amount needed); 287.5 tons of steel materials (9.9 percent of the amount needed); and 1,000 cubic meters of lumber (44.3 percent of the amount needed).

In the past years, especially last year, we realized the ministerial demand of "70 to 80 percent of the materials, 100 percent of the plan completed" through our own means.

2. Destroy the transport crisis. We organized the workers into transport teams and adopted the idea of using ball bearings on all vehicles so that in 1958 we solved our 320,000 kilometer transport task. In the first half of this year we have already completed 25,000 kilometers of the transport plan and saved 41,000 yuan.

3. Destroy the crane assembly crisis. In 1958 the total weight of cranes assembled came to 55,241 tons, and 8-fold increase over 1957. By September of this year it was 35,698 tons. The company

has only one 5-ton truck crane. Besides depending on two ladle crane assembly units for part of it, we must manufacture 40 pieces of hoisting equipment ourselves.

4. Destroy the labor crisis. By employing advanced experiences and advanced tools we saved 34,056 work days in 1958. Rational organization of labor, improved techniques, and the use of much hand-powered methods solved many instances of shortage of technicians.

5. Destroy the machinery and tool crisis. We must be self-reliant. In 1958 we produced 3,734 pieces of 138 types of machinery and tools. By September of this year we had produced another 1,051 pieces of 147 types, and moreover, greatly increased labor productivity.

6. Going over accounts to uncover latent capacity is also effective in overcoming difficulties. During the first half of this year the masses were mobilized in detailed accounting. As a result many areas not only had no lack of manpower but produced 518 workers to support other major projects. We also undertook an accounting of machinery which clearly showed the utilization rate of machinery.

Since the last half of last year, we have put great emphasis on the principle of rapid operation. Such a method of operations accounted for 84.5 percent of the projects during the last half of last year. We built an 8-story building, which was 40-meters long and had an area of 11,700 square meters, in just 45 days. This was 125 days less than the plan. In just 13½ days we built a 5,700 square meter machinery repair shop for a shipyard, nearly one-tenth of the time planned. We also built in just 27 days an 80-meter smoke stack, with a bottom diameter of 9 meters for an electric power station.

There are other reasons for adopting these fast methods other than for reducing building time. According to the results of four projects, costs were cut 26.4 percent and quality reached a class I project safely. According to our experiences, it is necessary to plan well the management of a large project using the rapid method. The project can be finished ahead of schedule if a plan coordinating all units involved, setting up an inspection system, establishing rapid accounting, and strengthening technical supply is set up. We especially wish to emphasize the emsurance of quality and safety. Safety education is important. In the first half of this year each worker received 46 sessions on safety education.

Many new tools came into existence last year, beginning with the technical revolution movement in May. Of the 3,734 tools produced, 383 were either of large or medium scale. The movement has carried over into this year and our mechanization rate has been raised from 18.4 percent to 39.4 percent. Because of the higher labor productivity, 528 workers have been assigned to other units.

At present every work area has both large and small tool manufacturing plants. We can manufacture such things as 500-liter mixers, water pumps, winches, electric welding machines, butt welding machines,

etc. The former phenomenon of a lack of tools is being changed. Old fashioned manual tools are gradually being improved through mechanization.

16. Ideas on Technical Regulations for Winter Operations

No. 21, 13 November 1959
Pages 43-46 (excerpt)

Operations Control Bureau of the Ministry of Construction and Engineering

In the past several years the construction units in northwest, northern, and northeast areas have gained many experiences in winter operational techniques and organizational control. Many effective methods to ensure quality of winter work and lower costs were gained, especially under the influence of the great leap forward of 1958. However, there still are a few units, which through lack of experience, caused accidents and low quality last winter in such things as not producing strong enough cement, cracks in brick work because of freezing, etc.

This year winter work accounts for over 20 percent of the plan. Many units have new workers who have not been adequately trained in winter operations, therefore we must devise some technical regulations for winter operations which will ensure the completion of our winter tasks and will allow projects to enter production next spring as planned.

17. Advance Under the Banner of the Main Line

No. 21, 13 November 1959
Pages 47-49 (excerpts)

Yen Ching-yu, deputy chief of Engineering Bureau No. 3 of the Ministry of Construction and Engineering

This year the entire working force of our bureau, on the basis of last year's leap forward, has made unceasing progress. We have completed our annual plan 60 days ahead of schedule and have already begun 1960 work.

At the end of October, we had completed our annual plan by 102.83 percent. In the 347 projects, the work period of the major projects had been cut three months to one-half year. Quality stood at 99 percent and labor productivity rose each month. In October it reached 44 yuan per day and a total of 1,074 yuan for the month. Also by the end of October the total value of labor productivity was 6,077 yuan per worker. Costs had been reduced 19.3 percent and after

the beginning of the "100 days without an accident" campaign, which began in July, accidents were greatly reduced.

The leaders and the masses are continuing to struggle to conserve materials through many ways to overcome the difficulties of material shortages. We would rather not use the materials we conserved in 1958 and stored for ourselves, but instead use them on major projects. By redistribution of materials among municipal and provincial units, shortages of 2,603 tons of steel, 19,000 tons of cement, and 2,200 cubic meters of lumber were solved.

Self-reliance and diversification are important methods employed to solve our material and equipment shortages. Through our self-reliance, we produced several thousand tons of cement and 4,230,000 bricks. We also helped to solve shortages in such difficult-to-secure products as asbestos, carbide, felt paper, etc. and even produced some hydroelectric parts and small hardware. When there was a shortage of nails many companies promoted semi-manual production. The raw material used was No. 8 wire, a reject material. Costs were very low through the use of temporary labor-dependents of workers.

18. Complete Work More Rapidly

No. 21, 13 November 1959
Pages 50-53 (excerpt)

Han Hsin-ch'uan, deputy chief of the Peiping Municipal Construction and Engineering Bureau

A short while ago the many workers engaged in Peiping municipal construction and installation operations had a 45-day struggle (15 August to 30 September) to complete a 1,247,000 square meter project. This was 90.6 percent greater than all the work finished in the period from January to July. This project included the People's Auditorium, 630,000 square meters of civil buildings, and 24 industrial projects at the Shih-ching-shan Iron and Steel Mill and 17 other plants. Also included were school buildings and housing construction. The results were glorious and very successful.

19. Self-Reliance Brings Forth Small-Scale Mechanization

No. 21, 13 November 1959
Pages 58-59 (excerpts)

Antung Municipal Construction and Engineering Company of Liaoning Province

Formerly our company had no large-or medium-scale construction tools. Most were hand operated. Our degree of mechanization was low and lacked adequate technical strength. Our 1958 plan was an almost

100 percent increase and in view of our weak technical conditions appeared quite difficult. It was also difficult to visualize how we were to mechanize. The party main line showed the way. We needed to only rely on the masses, self-reliance, and emphasis on small-scale mechanization.

After only a little over a year of effort, we have attained great success. Basically our operations are mechanized and our backward conditions are changed. We have renovated 3,600 tools such as mixers, cranes, steel-rolling mills, winches, grinders, generators, blowers, electric motors, electric welding machines, etc. We have raised our mechanization level from 10 percent to over 80 percent.

20. Control Construction Machinery Well

No. 21, 13 November 1959 Feng Shih-hsiu
Pages 62-63 (excerpts)

Since the great leap forward of last year there has been a great development in mechanized and semi-mechanized operations. Structures which formerly could not be crane assembled now can be. Machinery and equipment which formerly could not be manufactured now can be. The reduced need of manual labor has greatly raised productivity and lowered project costs. Many units have incorporated rapid inspection and repair and effectively improved control. They have thereby increased the usefulness of machinery. For example in Engineering Bureau No. 3, the completion of machinery rate in 1958 was 77.49 percent. This has been raised to 90.13 percent. The utilization rate of machinery has been raised from 76.7 percent to 91.89 percent. Some 592 pieces of self-produced equipment (this includes that produced in the first half of this year) accounts for 20 percent of the total machinery strength of the bureau.

Even with such great success there are weak points. At present, some units emphasize the utilization of machinery while not paying attention to management of machinery; therefore, after a certain limit is reached, equipment breakdowns occur and task completion is affected. Regulations concerning such phenomenon must be enacted to solve the situation.

21. Promote the "One Dragon" Method

No. 22, 29 November 1959
Pages 6-8

Chiao Pai-ch'ueh of the Shanghai Municipal Construction and Engineering Bureau

All construction and installation enterprises belonging to the Shanghai Municipal Construction and Engineering Bureau are promoting the technical revolution and the technical reform movements by using the "one dragon" method. According to current estimates this method is in use on the brickwork and crane assembly of 200,000 square meters of civil construction, while its use in white-washing and painting is being expanded. In industrial projects it is being used in earthwork, "rammed" concrete work, and pre-fab sections. There are 20 projects on which outside footings have been done away with. Slowly inside footings and "crane" footings are being begun. Fixed wooden molds are being used on 22,000 cubic meters of work already. Because of the "one dragon" method, labor productivity has been raised and the labor efficiency rate is up also. At present the efficiency rate in tile work is up to 65 percent. The highest rate is 7,720 bricks, which is 350 percent of the planned figure. In crane assembled pre-fab concrete, a new record of 400 pieces per shift has been set. The present labor productivity on civil construction is 40 yuan per day, an increase of 60 percent over the norm. During October the bureau exceeded its plan by 12.9 percent and labor productivity was up 4.5 percent over September. The daily value per worker was 39.2 yuan.

22. The Magnitude of Diversification

No. 22, 28 November 1959
Pages 10-12, 20

Yen Ching-yu, deputy chief of the Construction and Engineering Bureau of the Ministry of Construction and Engineering

The workers of our bureau since June 1958 have gained a high tide of industrialization and diversification. New plants are appearing everywhere and the value of industrial production has quickly risen. The value for 1958 was 1.4 times higher than 1957 and in the first 10 months of 1959 the value of production was already 50 percent greater than the same period of 1958. We have attained great success in diversification and this has been very useful in insuring the overfulfillment of our annual construction and installation plan.

1. The production of a great amount of construction materials through diversification has been effective in supporting industrial construction and in alleviating certain material shortage difficulties. The following table shows the amounts of major materials already produced by our bureau since last year through the first 10 months of this year:

Product	1958 Output	1959 Jan. to Oct. Output	Total
Steel	3,156	1,000	4,156 tons
Cement	2,569	4,767	7,338 tons
Red brick	-	638	638 ten-thousands
Refractory brick	877	3,053	3,930 tons
Asbestos	1,450	2,883	4,333 tons
Oiled felt paper	-	26,041	26,041 rolls
Electrodes	-	150	150 tons
Carbide	18	454	472 tons
Fiber board	300	10,000	10,300 sq. m.
Wood fiber board	361	700	1,061 cu. m.
Gravel	330,000	216,728	546,728 cu. m.

From the chart it can be seen that under conditions of urgent cement supply we produced over 7,000 tons of cement, and calculated on the amounts used last year, such an amount could built over 14,000,000 yuan of industrial projects or 10,000 square meters of civil construction. The self-production of such difficult to supply items as asbestos, oil felt paper, carbide, electrodes, and refractory brick is of primary concern in ensuring construction operations. Using asbestos as an example in a little over a year we have produced over 4,000 tons, enough to ensure the completion of over 300,000 yuan of insulation work. The quality of most of these products meets requirements. In such products as brick and lime, where the local supply is inadequate, we have found ways to solve it.

Of special mention is our attitude towards the central governments motto of "everyone in support of iron and steel refining." Since last year we have constructed a 20,000 ton per year steel refinery and have made advancements despite the lack of steel refining techniques. Our steel at present meets quality requirements. By the end of October we had already produced 1000 tons of "foreign" steel. Next year we also want to roll steel and use our own rolled steel in our construction.

2. The fact that we have produced large quantities of technical equipment and trained a large group of workers and cadre to handle technical matters has been effective in the development of the construction enterprise technical revolution. We have built 798 pieces

of machinery in a little over a year, of which 287 are small-or medium-size, 80 are for use in plants, 238 are electric motors, 183 are transformers and nearly 100 are rebuilt scrap machines. We also have produced over 6,000 small-scale tools.

The raising of labor productivity depends mainly on a continued reform in technical equipment. We must depend upon ourselves to produce medium- and small-scale machinery, and what is more, it is entirely possible. These self-produced machines will enable us to establish more processing enterprises. At present there are 19 processing plants with from one to several tens of machine tools. Most of these were established with the aid of machinery and automobile parts plants of various companies. Simultaneous with the development of the new plants has been the expansion of old plants. For example, one parts plants formerly had 20 machine tools but now had 50, and its employees have doubled. Many old plants have moved up in status from repair and parts plants to parts manufacturing plants and can mass produce medium- and small-scale simple machinery. The consolidation of many small plants has hastened their development. An example of this is one processing plant which at the start had 3 workers, one machine tool, and a few odd tools. Now it has expanded to over 100 persons and its equipment has increased also. At present our bureau's processing enterprises not only can produce general electric welding machines, winches, and mixers, ordinary machine tools, and non-standard equipment but also 750-KVA transformers and 100-KW generators.

3. By promoting diversification, the construction enterprises can utilize reject materials. Of the 15 materials we produce, outside of cement and bricks, all are 10 to 50 percent lower in cost than if they were bought on the open market. In the first 7 months of this year the costs of product produced in plants of our bureau were 2,650,000 yuan under the norm, for a reduction of 15.38 percent.

The economic effect of this diversification can be calculated not only in the products but also the great usefulness in national construction and their effect on actual construction completion. If sand is obtained in the vicinity of the project site costs will be lower. Calculated on the basis of the 216,728 cubic meters of sand the bureau has obtained, a saving of 1,070,000 yuan could be made and a great saving made in transport, not to mention the alleviation of the transport shortage. Diversification also provides a way of utilizing industrial rejects and work site reject products. It would reduce waste. Metallic waste is being used to make nails, welding rods, iron parts, and small hardware.

4. Local industry was developed, local industrial products increased, other units supported, etc. Since the great leap forward we have received aid from many units as well as through our own diversification. During the iron and steel movement our bureau processed 100 sets of steel refining equipment in support of various localities within the province. In the drive to use ball bearings in agriculture, we

manufactured over 300,000 sets of bearings. We have also made many other products in unselfish support of other units.

5. Through the diversification movement, many workers' dependents have engaged in industrial production, gaining new techniques and also greatly increasing the socialist labor force and increasing production. Such was also beneficial to the idealogical education and cultural education of these same dependents.

In conclusion, the diversification of construction enterprises, disregarding its economic or political implications or its immediate or long-range profit, is all good. Our various businesses must be unified, for through unification they are better. Such unification completely answers the demands of the principle of "more, quicker, better, and cheaper."

In developing this diversification movement our bureau realizes that:

1. Emphasis on mass movement. We must not depend on "experts," but on the masses.

2. Develop many "avenues" of diversification. One method is to depend on our old plants and expand them so that they are equal to new plants. The other method is depending on the old plants to provide equipment and technical strength and establish new plants. This method is good in that it provides a good base, requires little investment, and develops quickly.

3. Firmness is the principle of service for construction work. The promotion of diversification by construction enterprises is a service to construction work.

4. Establish a correct production program. Since the arrival of diversification, it is necessary to establish a much needed production program.

23. Fight the First Battle of Next Year Well

No. 23, 13 December 1959
Pages 9-10 (excerpts)

Ching Ho-hsien, deputy chief of the Liaoning Construction Bureau

The Liaoning provincial construction and installation departments are already 51 days ahead of schedule this year and have exceeded the full year's plan by 11.4 percent. Already 1,921 projects have entered production, including the main building and auxiliary engineering included in the preliminary stage of construction of the Liaoning Power Station and 37 other above-norm projects, such as at the Mukden Transformer Plant. There has also been big savings in labor and in the three major building materials. A new record was established as winter work began in November.

24. The Construction and Installation Enterprises of Szechwan Enter 1960 Work 56 Days Ahead of Schedule

No. 23, 13 December 1959
Pages 11-12 (excerpts)

Yu Hsia-yuan of the Szechwan Provincial Construction Bureau

The various construction and installation enterprises have begun a mass movement with its aim to raise quality and labor productivity and to promote the technical revolution and technical reform. Leadership cadre entered production and helped to solve key problems and weak points. In the first quarter of this year, Construction and Engineering Company No. 3 of Szechwan produced 2,273 tons of cement, 30.6 tons of steel, 434,000 bricks, 17 tons of carbide, and 223 pieces of various small machinery and equipment. It also solved 416,000 ton/kilometers of its transport task (30 percent of the entire quarterly plan). Through the fervent spirit of the workers, the first quarter plan was overfulfilled by 6.14 percent.

25. "The Battle of Consolidation" -- A New Type of Emulation

No. 23, 13 December 1959
Pages 15-18 (excerpts)

Kan Te-an of the Shansi Municipal Construction Bureau

The promotion of technical reform and technical revolution are important factors in the "consolidation battle." If our annual plan is to be overfulfilled without adding workers and in fact by reducing workers, then the technical reform and technical revolution are even more important. Many enterprises have mobilized the masses to ensure major projects and overall plan fulfillment. The major aims of the technical reform are not only quantity, but also speed and high efficiency. During the campaign five provinces' companies, by the end of October, had improved or built over 580 pieces of foreign-domestic machinery with efficiency increases of one to tenfold. In the field of concrete construction, mechanization has reached 50 to 60 percent. On the work site of the Flour Mill No. 2 at T'ai-yuan, 80 percent of the workers are utilizing machinery. They are using hand-powered cranes, winches, belt-conveyors, wheelbarrows, etc. Productivity is up 85 to 206 percent.

26. Promotion of the "One Dragon" Method in Industrial Building Construction

No. 23, 13 December 1959
Page 21 (excerpts)

Yang Hsing-hsien

Construction and Engineering Company No. 5 of Shanghai in encouraging the construction of roads and of the buildings on the second phase of civil construction, has entered wholeheartedly in the advanced "four dragon" method in brickwork, crane assembly, white-washing, and painting. On this basis they have begun the rapid method of "one dragon," a machinery and equipment method. At present on the site of a heavy machinery and equipment plant in work area No. 503, this method and other rapid methods in concrete, concrete pre-fabrication, and crane work are being carried out.

27. Oppose Rightism and Fight the First Battle of Next Year

No. 24, 28 December 1959
Pages 3-4 (excerpts)

Man Ch'iu, bureau chief of Engineering Bureau No. 2, Ministry of Construction and Engineering

Thus far this year the workers of this bureau have overfulfilled their plan by 35 percent. In diversification we have also exceeded our plan and in the trial manufacture and production of new products, we have reached new heights.

The construction and installation work assigned to us for next year has been increased onefold and our labor force cut one-fourth. Besides the increase in work, more finishing projects and a greater dispersion of work sites, there also is more new projects and more major projects of greater variety and greater technical complexity. We, therefore, must plan the work of the first quarter well so that the first battle of next year can be fought well.

We have begun a technical reformation and revolution to raise labor productivity. The main way to carry out the "one dragon" movement is to promote technical competition, mobilize the masses, and promote cooperation. Scientific research and the mass technical revolution must take place simultaneously. Production of new machinery and new materials needs to be carried out if the mechanization rate is to be increased.

28. Oppose Rightism and Promote Successes in Mass Movements

No. 24-28 December 1959
Pages 15-16 (excerpts)

Tu Yu-chen, party secretary of Construction and Engineering Company, No. 1, Liaoning Province

The Liaoning Electric Power Station's thermo-electric power station presently under construction began generation of electricity with its No. 9, 50,000-KW unit on 10 November. The station is domestically designed and built. The unit was completed in only 20 months.

Difficulties in personnel, technology, materials, equipment, etc. were overcome, while not sacrificing quality or speed. In only 5 months equipment was being installed in the 45,000-KW main building during the first phase. The second was 100 percent faster. Unit No. 10 was begun in October of this year. A new technique was used in the steel-reinforced concrete pipe used to transport water in the three pipelines for the Pai-lung Mountains. The pipe diameter is 2.2 to 2.5 meters. Line No. 1 is completed to the station, while the second and third lines are basically completed. By 15 November over 1,400,000 cubic meters of earth and rock work had been completed. A total of over 12,600 cubic meters of cement and over 10,000 tons of steel and metal have been used. The installation work on units No. 6 and No. 10, both of 50,000-KW capacity, is currently underway.

29. Actively Promote Lime-Silicate Concrete

No. 24, 28 December 1959
Pages 20-21

Editorial

The production of construction materials must be greatly developed to meet the needs of the continued progress of our construction industry. Not only must the latent qualities of our present materials be expanded, but new materials must be promoted.

Recently our Ministry and related units held a conference in Tientsin on the utilization of lime-silicate concrete. The discussions included utilization of such industrial by-products as ore-slag, furnace-ash, and powdered coal.

Why is the utilization of lime-silicate concrete of such importance? It answers present and future needs brought on by the development of the construction industry.

1. The promotion of this type concrete can utilize industrial by-products, alleviate shortages in certain materials and also reduce cement consumption.